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ABSTRACT

Beyond the nine years of compulsory education, Taiwan has the following two additional streams in the educational system: general academic education (GAE) and technological and vocational education (TVE). TVE has the two key features of a complete system to ensure students' horizontal and vertical mobility and a main schooling stream, parallel to the GAE stream at upper secondary and post-secondary school levels. The three levels of TVE--vocational high school, junior college of technology, and university/college of technology (UT/CT)--aim to prepare applicants for technical-managerial posts at the basic, middle, or advanced level. The key prospects regarding TVE in Taiwan are the following: (1) establishing relevant laws to further the development of TVE; (2) adapting the TVE schooling system to improve TVE graduates' access to further education; (3) keeping up with national economic development by cultivating the technical/managerial workforce; (4) developing a lifelong education system while assisting students with career development; (5) reconstructing the TVE curricula and concentrating on industry's needs; and (6) encouraging the participation of disadvantaged groups to achieve equality in education. (YLB)

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# Technological and Vocational Education in Taiwan

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# Technological and Vocational Education in Taiwan

Technological and vocational education (TVE) is also called vocational-technical education, technical-vocational education, career-technical education and so on. As both the Secretary General of the Industrial Technology Education Association (ITEA, Taiwan) and the Society for Training and Development (STD, Taiwan), in this paper the author will present the status of and prospects for TVE in Taiwan.

**Status of TVE in Taiwan**

Taiwanese cherish education and work hard. Figure 1 indicates the educational system in Taiwan. Beyond the nine years of compulsory education, there are two further streams in the system:

1. General Academic Education (GAE): 3-years senior high school + 4-years university/college;
2. Technological and Vocational Education (TVE): 3-years vocational high school + 4-years university/college of technology (UT/CT); 3-years vocational high school + 2-years junior college of technology (JCT) + 2-years UT/CT; 5-years JCT + 2-years UT/CT.

Source: CIA, 1999.

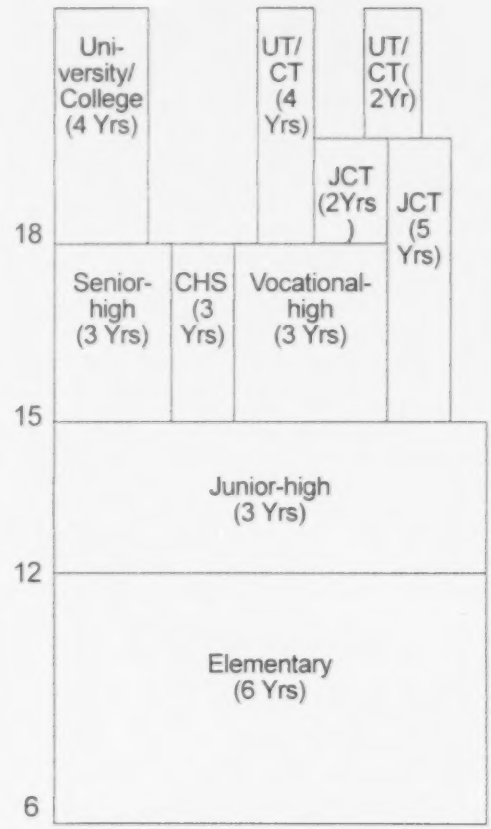


Figure 1. The geographic location of Taiwan and its educational system.

For the 1999-2000 academic year (from August 1,1999 to July 31, 2000), overall statistics for TVE in Taiwan were as follows: There was a total of 47 UT's/CT's, with



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For the 1999-2000 academic year (from August 1,1999 to July 31, 2000), overall statistics for TVE in Taiwan were as follows: There was a total of 47 UT's/CT's, with 110,062 students enrolled (including 105,633 undergraduates and 4,429 in graduate programs). JCT's numbered 36, with a total of 457,020 students (195,101 in 5-year colleges, 261,891 in 2-year colleges and 28 in 3-year colleges). There were 199 vocational high schools with 467,207 students. In other words, TVE students, in total numbering 1,034,289, accounted for 48.7% of the total number of students in both upper-secondary and post-secondary schools (DOTVE, 2000). In the same academic year, 33% of vocational high school graduates went on to receive further study at 4-year UT's/CT's or 2-year JCT's, and 22% of 5-year and 2-year JCT graduates went on to receive further study at 2-year UT's/CT's (Hwang, 2000).

As described above, TVE in Taiwan at has least two key features: (1) It is a complete system to ensure students' horizontal mobility (mainly in the area of job placement) and vertical mobility (mostly in the area of further study). (2) It is a main schooling stream, parallel to the GAE stream, at both the upper-secondary and post-secondary school levels. Due to these two key features, many talented students and educators are willing to participate in the TVE system. This maintains and promotes TVE's popularity in Taiwan.

The three levels of TVE – vocational high school level (which includes vocational programs provided by some senior high schools and comprehensive high schools), JCT level and UT/CT level (which includes some technology programs in the GAE system but recruits from vocational high school and/or JCT graduates), respectively aim to prepare applicants for technical/managerial posts at basic-, mid-, or advanced-level. Additionally, technical arts programs are provided at junior high school level. Its purpose is to enable students to gain awareness of their career interests and aptitudes at an earlier stage and to cultivate themselves accordingly. Table 1 indicates the goals, programs, and prospects for graduates of the four levels of TVE.

Table 1. The Goals, Programs, and Prospects for Graduate of the Four Levels of TVE.

| | Junior-high School Technical Arts Program | Vocational High School | Junior College of Technology (JCT) | University/College of Technology (UT/CT) |
|---|---|---|---|---|
| Goals | To give non-academically-oriented students the opportunity to acquire an employable skill before leaving school, or to lay the foundations for them to receive further education/training. | To provide students with adequate qualifications for basic level posts as well as further study skills, and develop a workforce which has sound work ethics and basic technical skills. | To teach students applied sciences and technology, and to turn out a workforce with mid-level technical/managerial skills. | To develop a higher level workforce in the fields of technology, engineering, and management. |

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|---|---|---|---|---|
| Programs | 1.Cooperation programs: jointly arranged by several junior high schools within a certain district or through cooperation between junior high schools, vocational high schools, 5-year JCT's and vocational training centers.<br>2.School-based programs: these programs are independently run by junior high schools.<br>3.Delegated programs: vocational high schools, 5-year JCT's and vocational training centers are commissioned to administer these programs.<br>In addition, some junior high schools and vocational high schools run technical arts education centers, which are open to students residing in specific districts. | 1.Daytime programs: the courses last for 3 years.<br>2.Evening programs: the courses last for 4 years.<br>3.Cooperation education programs: schools and business work together, giving students the opportunity to learn theoretical knowledge in school while gaining practical experience in their chosen field.<br>4.Practical skills programs: designed for junior high school graduates who do not intend to continue their formal education, to learn a marketable skill in accordance with their particular interests.<br>5.Special technical programs: designed for junior high school graduates with some degree of learning difficulties to help them acquire hands-on skills.<br>6.Supplementary education programs: designed for students who mostly are in current employment, so there are no age restrictions. | 1.2-year system: this offers daytime and evening as well as supplementary courses, and is designed for students who have graduated from vocational high schools or who have acquired an equivalent academic qualifications.<br>2.5-year system: this only has daytime courses and is designed for junior high school graduates. | 1.Undergraduate programs: both 4-year and 2-year programs are offered. The 4-year programs are designed for vocational high school graduates while 2-year programs are offered to JCT graduates.<br>2.Master's programs: These programs are available to bachelor degree holders from UT's/CT's, or students who have reached an equivalent academic level.<br>3.Doctoral programs: These programs are available to those who have completed a master's program at university/ college. |

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|---|---|---|---|---|
| Prospects for Graduates | Students from junior-high-school technical arts programs may enter the job market directly or be admitted to upper-secondary practical skills programs. | Graduates can choose between starting a business, taking up other employment, or going on to further studies at 2-year JCT's, or 4-year UT's/CT's. | Besides being able to enter the job market with mid-level technical/ managerial skills, JCT graduates are also eligible to study at either 2-year UT's/CT's or 4-year GAE universities/ colleges once they have passed the appropriate entrance examination. | 1. Career options: setting up new enterprises or taking up high-level positions as technical/ managerial specialists in enterprises, or governmental organizations.<br>2. Study options: pursuing further university study, developing an aptitude for independent research, and eventually becoming leaders in business and industrial fields. |

Source: DOTVE, 2000.

**Prospects for TVE in Taiwan**

The parallel TVE and GAE systems in Taiwan is like a pair of legs of a person. These two "legs" keep the development of human resources in Taiwan "marching on" ahead. In order to remain in step with national development, social change and changing values, and in accordance with technological advancement and international trends in vocational-technical education, we must pay attention to both "quantity" and "quality" as two legs of the TVE system. At present, there are a high number of institutions and students in TVE system, but higher quality must be pursued. Thus, the key prospects regarding TVE in Taiwan are as follows (DOTVE, 2000; Hwang, 2000):

**1.Establishing relevant laws to further the development of TVE**

Reflecting the demands of technological advancement and social change, a revision of the Technological and Vocational Education Law has been undertaken. The existing laws related to technological and vocational schools will be replaced by legislation on the establishment of a consistent TVE system, covering UT's, CT's, community colleges, JCT's, and vocational high schools. The new regulations will result in a more flexible TVE system,

thus opening more educational channels, offering greater variety within the curriculum, and developing TVE's unique features. The realization of lifelong learning opportunities and the implementation of an occupational certification system can also be listed among the benefits of these changes in legislation.

**2.Adapting the TVE schooling system to improve TVE graduates' access to further education**

There have been recent calls for reform from various groups. As a result, the ratio of senior high, vocational high school and 5-year JCT students at the upper-secondary-school level are being adjusted to convert some senior high schools and vocational high schools to comprehensive high schools, while simultaneously the vocational high school system is being given an overhaul. Moreover, in order to improve TVE graduates' access to further education, construction of more UT's/CT's and JCT's has been planned, and private schooling and the planning of community colleges is being encouraged. JCT's have been upgraded to CT's while retaining their JCT programs, and use of GAE university/college resources will be maximized in order to offer the TVE programs. The 2-year program at CT's is being encouraged in order to expand study opportunities for people currently employed, and changes will be made to regulations for the establishment of universities and their branches, so that CT's may become UT's offering comprehensive university education with an emphasis on practicality. Consequently, a coherent TVE schooling system (vocational high school—JCT—UT/CT) will be fully established.

**3.Keeping up with national economic development by cultivating the technical/managerial workforce**

In line with government policies for national economic development, the establishment of Taiwan as a "green silicon island," and preparation for joining the World Trade Organization (WTO), TVE will need to keep up with the rapid advancement in and automation of production and the demand for increasing internationalization. Improvements will be made in the training of workforce in the areas of foreign languages, finance, information technology, communications, hospitality and tourism, etc. Furthermore, to cope with changes in the structure of domestic production, there will be increased training of service personnel working in hi-tech areas.

**4.Developing a lifelong education system while assisting students with career development**

To meet the requirements of international trends combined with local resources in our learning society and to expand the accessibility of further/recurrent education, teaching staff and facilities at TVE institutions will be utilized as community education centers. More channels to higher TVE education will be opened and certain restrictions, for example on study modes and length of programs will be lifted. There will be further inter-program and inter-school cooperation and more daytime and evening courses. There will also be an expansion in the number of courses, beginning in both the fall and spring semesters, thus creating a more flexible system of entry and graduation for TVE students and giving them the opportunity to take courses which meet their needs.

**5.Reconstructing the TVE curricula, and concentrating on industry's needs**

In order that TVE meets industry's needs and falls in line with students' desires, a TVE

curriculum reform project has been implemented to adapt TVE programs and curricula. With the introduction of a more flexible cooperative education system, the implementation of pre-service occupational certification tests, and more variety in course times and teaching methods, students will be able to enjoy increased opportunities for practical training and gaining practical experience, thus ultimately improving their employability prospects. At the same time, when hiring teachers for specialist practical courses, schools will be urged to give priority to teachers who themselves have considerable practical experience and appropriate certification. Teachers will also be encouraged to increase their practical experience by participation in workshops and field studies. Specialist teachers will be able to achieve a higher rank by means of practical work. In addition, the quality of practical instruction will be improved by ensuring that only holders of the required certification are permitted to teach technical courses. This will be achieved by adopting a workplace-oriented approach to courses' contents, by emphasizing student involvement in capstone project work, and by working with other related institutions to fully implement an occupational certification system through legitimacy. In this system, both practical skills and education background are highly valued.

**6.Encouraging the participation of disadvantaged groups to achieve equality in education**

In accordance with the national policy for the promotion of social welfare, the availability of TVE to students from minority and disadvantaged groups will be expanded. The technical arts programs will be extended as part of the drive to realize the goal of a 12-year compulsory education system. More opportunities for TVE will be offered to the indigenous peoples of Taiwan, and current vocational high school teachers and facilities will be used to provide students who have some degree of learning difficulties with the opportunity to learn marketable skills and improve their livelihood. In order to achieve the educational equality and to eliminate resource discrepancies between public and private schools, the overall quality of education will be improved, more scholarships and loans will be made available, certain restrictions on application will be lifted and the financial burden on children from economically disadvantaged families will be eased.

It is said, "Never settle for second best." In TVE in Taiwan, we constantly seek the best.

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